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Spirituality/Religiosity, Substance Use, and HIV Testing Among Young Black Men Who Have Sex with Men

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Abstract

Background—Spirituality and religiosity may serve as both a resource and a barrier to HIV prevention with young black men who have sex with men (YBMSM). We examined indices of spirituality/religiosity as correlates of binge drinking, stimulant use, and recent HIV testing in a sample of YBMSM.

Methods—From 2011–2013, annual venue-based surveys of sexually active YBMSM ages 18–29 were conducted in Dallas and Houston, Texas. Binge drinking and stimulant use were assessed in the past two months. Participants recently tested for HIV (i.e., within the past six months) were compared to those without recent HIV testing (i.e., never tested or tested more than six months ago).

Results—Among the 1,565 HIV-negative or HIV-unknown YBMSM enrolled, more engagement in spiritual and religious activities was associated with greater odds of reporting stimulant use (Adjusted Odds Ratio [AOR] = 1.20; 95% CI = 1.04 – 1.40) while higher spiritual coping was associated with lower odds of reporting stimulant use (AOR = 0.66; 95% CI = 0.56 – 0.78). Binge drinking was independently associated with 29% lower odds of recent HIV testing (AOR = 0.71; 95% CI = 0.55–0.92), but lower odds of binge drinking did not mediate the association of engagement in spiritual and religious activities with 27% greater odds of recent HIV testing (AOR = 1.27; 95% CI = 1.11–1.46).

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Conclusions—Among YBMSM, culturally tailored approaches addressing spirituality/religiosity could support prevention of stimulant use and increase HIV testing. In particular, expanded efforts are needed to promote HIV testing in binge drinkers.

Keywords

Alcohol; HIV Testing; Religiosity; Spirituality; Stimulants

1. Introduction

The black church in conjunction with the black family has historically provided physical and spiritual homes for black Americans in which black men who have sex with men (MSM) can actively cope with sources of adversity such as racism in a white, heterodominant society (1, 2). Consequently, religious institutions broadly influence men's identity formation, notions of masculinity, and health practices (3–5). This observation is supported in part by prior findings that certain religious beliefs such as those that encourage men to conceptualize their bodies as "a temple" can actually increase engagement in HIV testing, care, and treatment (6–8). However, institutionalized homophobia practiced through religious teachings condemning homosexuality, which are implicitly reinforced through the silence surrounding sexual minorities, may have negative consequences for black MSM (4, 9–11). The double-edged nature of religious involvement is supported by prior research with black sexual minority youth where the association of religious participation with resilience was observed only among those with higher internalized homonegativity (12). Indeed, religious participation has been associated with greater internalized homonegativity and lower life satisfaction but also decreased club drug use in ethnically diverse samples of young MSM (13, 14). Taken together, religiosity may represent both a resource as well as a barrier to health for young black MSM (YBMSM).

Spirituality encompasses beliefs and practices that facilitate a sense of meaning and purpose through a connection with the divine (15). Although many black MSM maintain connections with religious institutions, some may also turn to more personal, spiritual practices to optimize their psychological adjustment and well-being. There is some evidence that spirituality is associated with decreased condomless anal intercourse in prior studies with MSM (16), but further research is needed to examine the relevance of spirituality among YBMSM. The possibility that there are benefits of spirituality for this population is supported by a recent cross-sectional study which showed that higher spiritual coping was associated with a greater sense of purpose in life and self-esteem in an ethnically diverse sample of young MSM (14). This indicates that spirituality could function as a source of resilience for YBMSM that is theorized to reinvigorate meaning-focused coping efforts that may be crucial for psychological adjustment and health behavior change (17), both of which are crucial to optimize HIV/AIDS prevention.

YBMSM experience profound HIV-related health disparities. In the United States, the majority of new HIV infections are among MSM and recent findings indicate that HIV incidence has increased 43% among YBMSM between 13 and 29 years of age (18). Although black MSM are just as likely to have tested for HIV in the past six months as

white and Hispanic/Latino MSM (19), they are more likely to have lower T-helper (CD4+) cell counts at diagnosis of HIV infection and experience hastened mortality (20). YBMSM have more than 7-fold greater odds of undiagnosed HIV infection compared to other young MSM (21) and black MSM are more likely to experience difficulties with navigating the HIV care continuum (22, 23), leading to higher community HIV viral load and greater HIV transmission rates. More research is needed to identify barriers and facilitators to optimizing the timely identification as well as early treatment of HIV infection among YBMSM.

Racial disparities in HIV incidence are paradoxical because black MSM report similar rates of condomless anal intercourse and less substance use compared to other MSM (21), which underscores the importance of structural and social factors to explain disparities. Several factors such as racism, poverty, and incarceration have been identified as key drivers of HIV-related health disparities among black MSM, particularly in the United States (22, 24, 25). The deleterious influence of these structural factors may be compounded by stigma towards homosexuality and HIV that appears to disproportionately affect black MSM (26). In the context of these structural inequities, social factors such as same-race sexual partnering (i.e., homophily), having older sexual partners, greater density of sexual networks, and sexual concurrency may play important roles in the disproportionate impact of HIV on YBMSM (27–29). This confluence of structural and social factors may also contribute to engagement in health risk behaviors such as alcohol and other substance use that have negative implications for HIV prevention and care.

It is well established that alcohol and other substance use co-occur with psychosocial health problems, serving as potent risk factors for HIV seroconversion among MSM (30–32). Unhealthy alcohol use as well as the use of sex-enhancing substances like stimulants are associated with engagement in condomless anal intercourse and greater rates of HIV seroconversion in MSM (33–36). Although few studies have examined the association of alcohol and other substance use with HIV testing in MSM, findings from a sample of Peruvian MSM indicate that an alcohol use disorder is independently associated with greater odds of undiagnosed HIV infection (37). Among MSM, problematic patterns of alcohol and stimulant use are more prevalent among those who are younger and have lower educational attainment as well as individuals with mental health comorbidities such as depression (36, 38, 39). Because prior research focused extensively on cohorts of older, predominantly white MSM, more studies are needed to examine the unique context in which YBMSM engage in alcohol and other substance use as well as negotiate HIV-related health behaviors such as HIV testing.

The primary objective of the present cross-sectional study was to examine whether and how indices of spirituality/religiosity are differentially associated with recent HIV testing among YBMSM from two large metropolitan areas in Texas. Informed by Stress and Coping Theory (17, 40), we hypothesized three distinct pathways whereby indices of spirituality/religiosity may differentially influence HIV testing (see Figure 1). First, greater spirituality/religiosity may be representative of underlying meaning structures that imbue coping efforts with a sense of purpose, decreasing cognitive and experiential avoidance. We hypothesized that higher spiritual coping would be associated with greater odds of recent HIV testing via lower odds of binge drinking and stimulant use. Second, because research religious

participation may entail chronic exposure to sexual minority stressors, individuals may be psychologically motivated to escape these with alcohol or stimulant use (41). We hypothesized that more spiritual or religious participation would be associated with greater odds of binge drinking and stimulant use, which would explain its association with lower odds of recent HIV testing. Third, appraisals of stressor controllability have important implications for energizing problem-focused coping efforts (42). We hypothesized that perceiving a divine, external locus of control (an uncontrollable stress appraisal) would be associated with a similar pattern of behavioral disengagement, greater odds of binge drinking and stimulant use which are, in turn, associated with lower odds of HIV testing.

2. Methods

2.1. Procedures

YBMSM from Dallas and Houston, Texas were recruited from 2011 through 2013 for annual cross-sectional surveys as part of a trial of a community-level HIV prevention intervention. Details of the intervention trial and recruitment procedures have been described elsewhere (43). A venue-based sampling approach was employed to recruit YBMSM from bars, clubs, retail establishments, restaurants and cafes, adult bookstores, bathhouses, high-traffic street locations, parks, and other social or religious organizations. YBMSM between the ages of 18–29 who reported sex with a man in the past 12 months were eligible to participate in the annual cross-sectional surveys. Participants completed study measures in the locations in which they were recruited using hand-held devices that presented written questions sequentially and allowed participants to respond directly on the device.

The present study utilized data from 1,565 YBMSM who completed any of the surveys in Dallas (n = 869) or Houston (n = 696). Participants included in the present study reported their last HIV test to be negative, that they did not receive the results of their last HIV test, or that they had never been tested for HIV. Participants who were HIV-positive (n = 172) or believed themselves to be HIV-positive (n = 16) were not included. If a participant completed more than one annual survey, only his first survey was included in the analysis. All study procedures were approved by the Institutional Review Boards at the University of California, San Francisco; the University of Texas Southwestern; the University of Texas, Houston; and the Centers for Disease Control and Prevention (CDC).

2.2. Measures

2.2.1. Sociodemographics—Sexual identity, age, educational attainment, employment status, income, housing status, and history of involvement with the criminal justice system (i.e., juvenile justice, jail, or prison) were assessed.

2.2.2. Indices of Spirituality/Religiosity—Three separate measures of spirituality/religiosity were administered. Correlations among these measures were small to moderate (r's = 0.28 – 0.44), suggesting that they assess relatively distinct facets of spirituality/religiosity.

2.2.2.1. Spiritual and Religious Activities: Frequency of involvement in spiritual and religious activities was assessed using three items where participants rated how often in the past two months they: 1) attended religious or spiritual services; 2) did personal meditation or prayed; and 3) consulted a spiritual or religious leader. Items were rated on a Likert-type scale from Never (1) to Daily (6). This composite score displayed adequate internal consistency (Cronbach's Alpha = 0.74; M = 9.7, SD = 3.9).

2.2.2.2. Spiritual Coping: Participants completed five items (e.g., "How much does prayer/meditation help you to find solutions to your problems?") assessing the extent to which spiritual beliefs and practices assisted them with managing controllable as well as uncontrollable stressors (44). Items were rated on a Likert-type scale from Not at all (1) to A Great Deal (5). This composite score displayed adequate internal consistency (Cronbach's Alpha = 0.82; M = 18.1, SD = 5.3).

2.2.2.3. Belief that One's Health is in God's Hands: The 6-item God Locus of Control Scale was administered to measure the extent to which participants reported a divine, external locus of control for their health (45). Items (i.e., "God is directly responsible for my health getting better or worse.") were rated on a Likert-type scale from Disagree Strongly (1) to Agree Strongly (6). This composite score displayed adequate internal consistency (Cronbach's Alpha = 0.88; M = 23.2, SD = 8.9).

2.2.3. Binge Drinking and Stimulant Use—Participants indicated the number of days in the past two months where they had five or more standard drinks on the same occasion, defined as binge drinking (46). To code this variable, participants who reported at least one binge drinking episode in the past two months (1) were compared to those who did not report binge drinking over this period (0). Similarly, participants reported the number of days in the past two months where they used powder cocaine, crack-cocaine, methamphetamine, or ecstasy; hereafter referred to as stimulant use. Participants also reported whether they were feeling the effects of these stimulants during sex in the past two months. In coding this variable, those who reported any stimulant use during the past two months (1) were compared to participants who did not report using stimulants over this period (0).

2.2.4. Recent HIV Testing—Participants reported the date of their most recent HIV test. Although CDC recommends that "high-risk" individuals be screened for HIV at least annually (47), some research suggests that sub-groups of MSM might benefit from more frequent HIV testing (e.g., every 3 to 6 months). As a result, we defined recent HIV testing as participants who had been tested for HIV within the previous six months (1), and compared this group to participants who had never been tested for HIV or had been tested for HIV more than six months ago (0).

2.3. Statistical Analyses

The present investigation utilized multiple logistic regression to examine correlates of any binge drinking and any stimulant use in the past two months. Demographic characteristics (e.g., age) and structural factors (e.g., history of criminal justice involvement) were included

as model covariates because they may be important correlates of these outcomes (see Table 1). Similarly, we conducted a multiple logistic regression analysis to examine the correlates of recent HIV testing after adjusting for demographic characteristics and structural factors (see Table 2). Continuous measures of spirituality/religiosity were mean centered (M = 0, SD = 1) to facilitate the interpretation of the parameter estimates. Maximum likelihood estimation procedures were employed using M*plus* 7.31 to obtain parameter estimates that utilize all available data. To examine mediation, we tested the significance of the total natural indirect effects of spirituality/religiosity on recent HIV testing via binge drinking and stimulant use (48). In contrast to the Baron and Kenny (49) stepwise approach to testing mediation, testing the significance of the indirect effect does not require a significant association of indices of spirituality/religiosity with HIV testing (50).

3. Results

The majority of the 1,565 HIV-negative or HIV-unknown YBMSM included in the current study were gay (74%), age 21 or older (86%), high school graduates (88%), and were currently employed (78%). The median age was 24 (Interquartile Range = 21–27) years old. Nearly half (46%) of participants reported making less than $20,000 in annual income and 12% reported a history of homelessness with 8% being homeless in the past year. More than one in four participants (29%) reported a history of criminal justice involvement and 13% had interactions with the criminal justice system in the past two months (see Table 1).

The majority of participants (60%) reported binge drinking in the past two months, with no significant differences between Dallas (61%) and Houston (60%; χ^2 (1) = 0.636, $p > 0.05$). More than one in five participants (23%) reported stimulant use in the past two months with no significant differences between Dallas (21%) and Houston (24%; χ^2 (1) = 0.215, $p > 0.05$). Approximately three-fourths of participants (72%) reported recent HIV testing, i.e., having been tested during the past six months. Notably, 110 participants (7%) reported having never been tested for HIV. There were no significant differences in the prevalence of recent HIV testing between Dallas (71%) and Houston (74%; χ^2 (1) = 0.202, $p > 0.05$).

Older age and criminal justice involvement in the past two months were associated with higher odds of reporting any binge drinking (see Table 1). Compared to those who did not graduate high school, high school graduates had lower odds of reporting binge drinking. None of the measures of spirituality/religiosity were significantly associated with binge drinking. Older age, a history of homelessness in the past year, and a history of criminal justice involvement were associated with greater odds of stimulant use while higher educational attainment was associated with lower odds of stimulant use. Although greater engagement in spiritual and religious activities was independently associated with a 20% greater odds of any stimulant use (Adjusted Odds Ratio [AOR] = 1.20; 95% CI = 1.04 – 1.40), higher spiritual coping was independently associated with 34% lower odds of any stimulant use (AOR = 0.66; 95% CI = 0.56 – 0.78). A belief that one's health is in God's hands was not significantly associated with stimulant use.

As shown in Table 2, binge drinking was independently associated with 29% lower odds of recent HIV testing (AOR = 0.71; 95% CI = 0.55 – 0.92), but stimulant use was not

significantly associated with recent HIV testing (AOR = 0.81; 95% CI = 0.59 – 1.10). Contrary to hypotheses, greater engagement in spiritual and religious activities was independently associated with 27% greater odds of recent HIV testing (AOR = 1.27; 95% CI = 1.11 – 1.46). Neither spiritual coping nor a belief that one's health is in God's hands were significantly associated with recent HIV testing. All tests of indirect effects examining associations of the three indices of spirituality/religiosity on recent HIV testing via stimulant use or binge drinking were non-significant.

4. Discussion

Findings from the present cross-sectional study highlight that spirituality/religiosity is an important, culturally relevant factor that has complex implications for substance use and HIV prevention among YBMSM. More frequent engagement in spiritual and religious activities was associated with greater odds of reporting stimulant use but also greater odds of recent HIV testing. Although YBMSM may derive important benefits from spiritual and religious activities, religiosity in particular may also contribute to internalized homonegativity and distress (12, 14). Engaging in stimulant use may be a method of temporarily escaping or avoiding these negative cognitions and aversive emotional states (31, 38), but it may also increase risk of HIV seroconversion (34, 35). It is noteworthy, however, that recent findings with a cohort of black MSM reporting recent condomless anal intercourse observed that stimulant use and problematic alcohol use were not significantly associated with HIV incidence (51). Despite questions surrounding the role of stimulant use as a risk factor for HIV seroconversion, participating in spiritual and religious activities may be an important source of risk and resilience for YBMSM.

Spirituality has been theorized to reinvigorate meaning-focused coping efforts that contribute to enhanced psychological adjustment and health behavior change (17). This theory is supported in part by prior research where indices of spirituality/religiosity were associated with decreased odds of condomless anal intercourse among MSM (16) as well as greater sense of purpose in life and self-esteem among young MSM (14). In the current study, the potential adaptive significance of spirituality for YBMSM is supported by the independent association of spiritual coping with lower odds of reporting stimulant use in the past two months. It is possible that spirituality supports enhanced motivation and adaptive coping responses (52), decreasing the likelihood that YBMSM use stimulants as a means of escape or avoidance (38).

Indices of spirituality/religiosity were not indirectly linked to recent HIV testing via lower odds of binge drinking or stimulant use. However, binge drinking was independently associated with lower odds of recent HIV testing. Consistent with prior research with Peruvian MSM where alcohol use disorders were associated with greater odds of undiagnosed HIV infection (37), findings from the present study indicate that problematic patterns of alcohol use are independently associated with lower odds of recent HIV testing. To optimize the effectiveness of "test and treat" approaches to HIV/AIDS prevention among YBMSM (53), expanded efforts are needed to promote HIV testing among those who are binge drinkers. Implementation science research with YBMSM is needed to examine the

potential benefits of network-based and mobile testing in venues where binge drinking occurs.

Findings from the present cross-sectional study should be interpreted in the context of some important limitations. Because annual venue-based surveys were administered to examine community-level changes in the broader population of sexually active YBMSM in Dallas and Houston, we were unable to examine whether spirituality/religiosity was associated with temporal changes in binge drinking, stimulant use, and recent HIV testing. Although we observed that greater engagement in spiritual and religious activities was associated with higher odds of stimulant use, it is plausible that individuals seek out spiritual and religious activities as a source of support for reducing stimulant use. Finally, it is noteworthy that sexual minority stress processes such as internalized homonegativity have been shown to modify the associations of spirituality/religiosity with indices of psychosocial adjustment in sexual minority populations. The important role of sexual minority stress processes should be considered in future research with YBMSM.

Future longitudinal research should also examine the underlying social and psychological pathways that account for the potentially beneficial as well as deleterious effects of spirituality/religiosity in YBMSM. Prior research examining spirituality/religiosity has been limited by the use of single-item measures (15), but one limitation of the present study is that the degree to which individuals engaged in spiritual versus religious activities were not assessed separately. Further research is needed to more clearly differentiate spiritual and religious activities as well as examine heterogeneity in religious services that men attend based on the extent to which they are affirmative of sexual minorities (26). The present study also did not measure the places where participants completed HIV testing, and further research is needed to examine if religious institutions are viable venues for testing YBMSM. Measurement of alcohol and stimulant use was limited by the fact that only brief surveys could be administered at venues. Thus, we were unable to administer validated measures to screen for alcohol and stimulant use disorders in this population. We were also unable to measure different modes of stimulant administration. Finally, because a relatively small number of YBMSM had never been tested for HIV we were unable to examine never having testing for HIV as a separate outcome.

Despite these limitations, findings from the present study advance our understanding of spirituality/religiosity as a culturally relevant factor that may have important beneficial and deleterious consequences for YBMSM. Findings also highlight that binge drinking and stimulant use are prevalent among YBMSM, and expanded efforts are needed to promote HIV testing among YBMSM who are binge drinkers. YBMSM continue to experience profound HIV-related health disparities, and findings from the present study will inform the development of culturally tailored intervention approaches to reduce problematic patterns of alcohol and other substance use as well as promote HIV testing.

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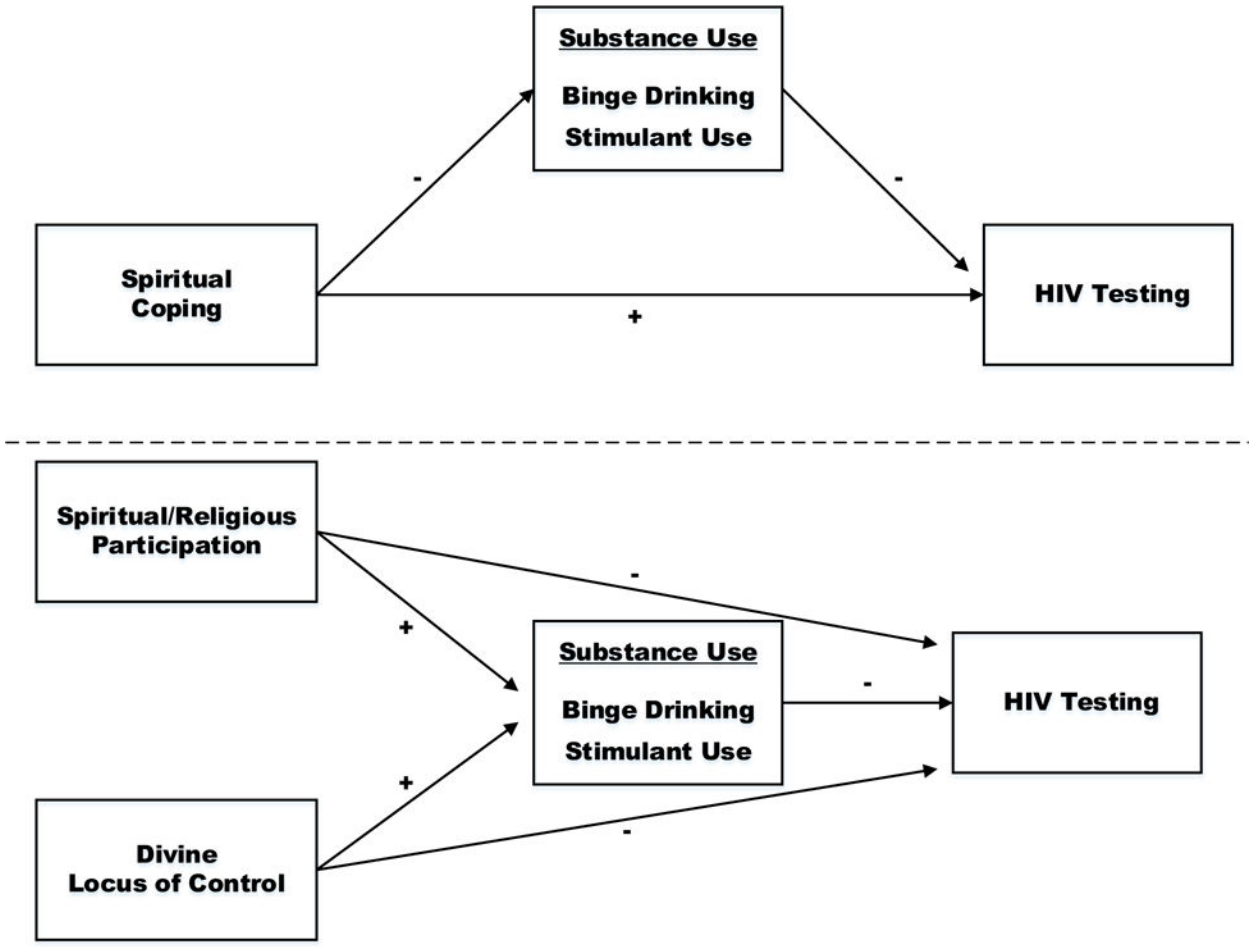

Figure 1.
Substance use pathways whereby spirituality/religiosity indices were hypothesized to be associated with HIV testing.

Table 1

Correlates of binge drinking and stimulant use in young black men who have sex with men (N = 1,565)

	N (%)	Binge Drinking	Stimulant Use
		AOR (95% CI)	AOR (95% CI)
City of Recruitment			
Dallas (Reference)	869 (55.5)	-	-
Houston	696 (44.5)	0.94 (0.76 – 1.17)	1.05 (0.80 – 1.38)
Sexual Identity			
Not Gay (Reference)	404 (25.8)	-	-
Gay	1158 (74.0)	0.91 (0.72 – 1.17)	0.94 (0.70 – 1.26)
Age			
18–20 (Reference)	220 (14.1)	-	-
21–23	524 (33.5)	1.60 (1.14 – 2.24) **	1.22 (0.78 – 1.91)
24–26	485 (31.0)	2.16 (1.53 – 3.06) **	1.46 (0.91 – 2.33)
27–29	333 (21.3)	2.92 (1.97 – 4.31) **	1.76 (1.08 – 2.87) *
Education			
Less than High School (Reference)	189 (12.1)	-	-
High School Graduate	541 (34.5)	0.62 (0.42 – 0.91) *	0.24 (0.16 – 0.36) **
At Least Some College	821 (52.5)	0.86 (0.58 – 1.28)	0.22 (0.15 – 0.32) **
Employment Status			
Employed (Reference)	1227 (78.4)	-	-
Unemployed or Disabled	325 (20.8)	0.95 (0.72 – 1.26)	1.22 (0.86 – 1.71)
Income			
Less than 20,000 (Reference)	714 (45.6)	-	-
20,000–39,999	455 (29.1)	0.88 (0.67 – 1.16)	0.81 (0.56 – 1.16)
40,000–59,999	243 (15.5)	0.75 (0.54 – 1.05)	1.03 (0.68 – 1.55)
60,000 +	134 (8.6)	0.75 (0.49 – 1.14)	1.28 (0.79 – 2.09)
History of Homelessness			
Never (Reference)	1359 (86.8)	-	-
Greater than One Year Ago	71 (4.5)	1.56 (0.89 – 2.74)	1.45 (0.80 – 2.61)
Past Year	122 (7.8)	1.31 (0.63 – 2.73)	2.31 (1.14 – 4.68) *
History of Criminal Justice Involvement			
Never	1098 (70.2)	-	-
Greater than Two Months Ago	246 (15.7)	1.18 (0.87 – 1.61)	1.86 (1.30 – 2.68) **
Past Two Months	203 (13.0)	1.50 (1.03 – 2.18) *	2.76 (1.87 – 4.07) **
Spirituality/Religiosity			
Spiritual and Religious Activities		0.98 (0.87 – 1.11)	1.20 (1.04 – 1.40) *
Spiritual Coping		0.93 (0.81 – 1.06)	0.66 (0.56 – 0.78) **
Belief that Health is in God's Hands		1.09 (0.97 – 1.23)	1.09 (0.93 – 1.28)

* $p < .05$;

** $p < .01$

Table 2

Correlates of recent HIV testing in young black men who have sex with men (N = 1,565)

	AOR (95% CI)
City of Recruitment	
Dallas (Reference)	-
Houston	1.22 (0.96 – 1.54)
Sexual Identity	
Not Gay (Reference)	-
Gay	1.06 (0.81 – 1.38)
Age	
18–20 (Reference)	-
21–23	0.78 (0.54 – 1.14)
24–26	0.93 (0.62 – 1.37)
27–29	0.83 (0.54 – 1.27)
Education	
Less than High School (Reference)	-
High School Graduate	1.11 (0.75 – 1.64)
At Least Some College	1.37 (0.92 – 2.03)
Employment Status	
Employed (Reference)	-
Unemployed or Disabled	0.80 (0.60 – 1.08)
Income	
Less than 20,000 (Reference)	-
20,000–39,999	1.02 (0.76 – 1.37)
40,000–59,999	1.04 (0.72 – 1.50)
60,000 +	1.00 (0.63 – 1.57)
History of Homelessness	
Never (Reference)	-
Greater than One Year Ago	1.12 (0.64 – 1.97)
Past Year	0.93 (0.47 – 1.86)
History of Criminal Justice Involvement	
Never	-
Greater than Two Months Ago	1.25 (0.89 – 1.76)
Past Two Months	0.86 (0.59 – 1.26)
Any Binge Drinking	0.71(0.55 – 0.92) **
Any Stimulant Use	0.81 (0.59 – 1.10)
Spirituality/Religiosity	
Spiritual and Religious Activities	1.27 (1.11 – 1.46) **
Spiritual Coping	1.09 (0.94 – 1.25)
Belief that Health is in God's Hands	0.95 (0.84 – 1.08)

** $p \leq .01$